CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

FACT SHEET
TENTATIVE ORDER NO. 2001-283
NPDES PERMIT NO. CA0001368

WASTE DISCHARGE REQUIREMENTS
DUKE ENERGY SOUTH BAY, LLC
SOUTH BAY POWER PLANT
SAN DIEGO COUNTY

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1. CONTACT INFORMATION

Regional Water Quality Control Board Contact Person:

Hashim Navrozali
(858) 467-2981
9174 Sky Park Court, Suite 100
San Diego, California 92123
Email: navrh@rb9.swrcb.ca.gov

Duke Energy Contact Person:

Donald W. Weaver III
Plant Manager
(619) 498-5200
South Bay Power Plant
990 Bay Blvd.
Chula Vista, CA 91911

2. FACILITY DESCRIPTION AND BACKGROUND

The Duke Energy LLC, South Bay Power Plant (SBPP) is a fossil-fueled steam electric power generating station that began operation in 1960. The facility is located at 990 Bay Boulevard, Chula Vista, California, on the southern edge of San Diego Bay. This 150-acre, 737-gross megawatt (MW) plant is located in Section 9, T18S, R2W SBBM.

On January 25, 1985, the Regional Water Quality Control Board, San Diego Region, (Board) adopted Order No. 85-09, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0001368, *Waste Discharge Requirements for San Diego Gas & Electric (SDG&E) Company's South Bay Power Plant, San Diego County*. The Order established waste discharge requirements for the combined discharge of up to 602.2 million gallons per day (MGD) of elevated temperature once-through cooling water and other waste discharges from SBPP to south San Diego Bay.

On June 29, 1989, SDG&E submitted to the Board an application for renewal of NPDES Permit No. CA0001368. SDG&E amended its application on June 1, 1993, and October 26, 1994. The Board adopted Order No. 96-05 on November 14, 1996, which renewed NPDES Permit No. CA0001368.

On April 23, 1999, SDG&E sold SBPP to the San Diego Unified Port District, which concurrently leased the plant to Duke Energy South Bay, LLC. Duke Energy has assumed all responsibility, coverage, and liability in regards to this NPDES permit.

Order No. 96-05 expires on November 14, 2001. Pursuant to 40 CFR Part 122.46, Order No. 2001-283, renews NPDES Permit No. CA0001368 for another five years and updates the waste discharge requirements for the SBPP.

The SBPP has four steam turbine electrical generating units and one gas turbine generator. Each of the four steam turbine units burns natural gas with the option of burning fuel oil as economic conditions dictate. Each of the units generate electricity independently or in conjunction with one another and their ratings can fluctuate over time. The table below summarizes each unit's current gross megawatt (MW) rating and start-up date.

Unit	Date on Line	Capacity
1	July 1960	151 MW
2	June 1962	156 MW
3	September 1964	183 MW
4	December 1971	232 MW
Gas Turbine	October 1966	15 MW
Total Plant Capacity		737 MW

In addition to the generating units, the SBPP industrial complex is composed of 1) five exhaust stacks; 2) five fuel oil storage tanks; 3) separate seawater (cooling water) intake and discharge channels including appurtenant structures; 5) an electrical switchyard; 6) various warehouses and office buildings; and 7) a number of access roads and one railroad siding.

3. DISCHARGE SOURCES AND WASTE CHARACTERIZATION

The SBPP has the following wastewater streams (non-stormwater) discharged to San Diego Bay. All the discharges are associated with the once-through (non-contact) cooling water system:

Wastewater Discharge	Maximum Flow (MGD)
Once-Through (Non-Contact) Cooling Water System	601.127

(1) Cooling water
(2) Cooling water pump lubrication and seal water and pretreatment backwash
(3) Traveling screen washwater
(4) Condenser pre-filter and ball recirculation system water
(5) Forebay cleaning washwater
(6) Manual cleaning of encrusting organisms from tunnels and condenser units
(7) Chlorination system
(8) Tube leak seals
(9) Corrosion protection
(10) Salt water heat exchanger cooling water
(11) Units 1 and 2 circulating water pump station sump water

No wastes produced by or in conjunction with the gas turbine generator are discharged to San Diego Bay. Sanitary wastes produced at the SBPP are discharged to the municipal sanitary sewer system for treatment and disposal. Furthermore, starting December 31, 1997, SDG&E re-engineered the waste streams described in Order No. 96-05 as "Low Volume Wastes" and "Metal Cleaning Waste" to discharge these wastes to the City of Chula Vista sanitary sewer system. These operations are now regulated under an Industrial User Discharge Permit (No. 13-0279-01A) issued by the City of Chula Vista Department of Public Works and San Diego Metropolitan Wastewater Department.

DESCRIPTION OF COOLING WATER SYSTEM

The primary waste discharges from the SBPP are associated with the once-through (non-contact) cooling water system. The cooling water system is associated with the four steam units, and utilizes San Diego Bay as both source water and receiving water. Each unit utilizes a closed cycle in which high quality feed water is turned to steam in boilers, the steam is passed through turbines to generate electricity, the steam is condensed to water by the cooling water system, and the feed water is returned to the boilers. The elevated temperature once-through cooling water is returned back to the bay via a discharge channel.

The flow diagram showing the waste streams from the components and sub-components associated with the once-through cooling water system can be found in Attachment 1. The cooling water components and associated waste streams are described below:

1. <u>Intake Channel</u>

   Cooling water is withdrawn from San Diego Bay through a single intake channel that extends in a westerly direction about 5,735 feet from the SBPP property line on the west side of the plant. The intake channel has a bottom width of 200 feet at its widest point, tapers to 50 feet near the Unit 4 intake structure, and is about 15 feet deep. The channel was constructed by dredging and diking operations, and the sides of the channel are composed of natural earth and rock riprap. Over the years, some filling-in has occurred, although in the area near the units' screens, it has been minimal. Variations in channel water surface elevation due to the tide are from a low of about -5.0 feet to a high +5.7 feet (elevation 0 being mean sea level, msl).

2. <u>Intake Structures</u>

   The SBPP has three separate intake structures on the north side of the intake channel. Each intake structure is composed of a forebay and a set of traveling screens. Units 1 and 2 are served by one structure (Latitude 32° 36' 50.8" North, Longitude 117° 05' 50.6" West), Units 3 is served by one structure (Latitude 32° 36' 50.1" North, Longitude 117° 05' 49.2" West), and Unit 4 is served by one structure (Latitude 32° 36' 49.7" North, Longitude 117° 05' 48.3" West). Water flowing in the intake channel (the amount of which depends on the number of units in operation) approaches the Units 1 and 2 structure first (a distance of about 114 feet east from the intake property line to the structure), then the Unit 3 structure (about 131 feet east from the Units 1 and 2 structure), and lastly the Unit 4 structure (about 93 feet east from the Unit 3 structure). Floating booms are situated in the intake channel in front each structure to retain large floating material washed in from the bay. Material in front of the booms is collected as needed and disposed in appropriate land disposal sites. Each forebay extends from a trash rack at the intake channel end of the forebay to a set of circulating water pumps. The sides and bottom of the forebay are concrete lined. The Units 1 and 2 forebay is 31 feet long, 26 feet wide and 22 feet deep at high tide. The Unit 3 forebay is 28 feet long, 23 feet wide and 22 feet deep at high tide. The Unit 4 forebay is 26 feet long, 26 feet wide and 22 feet deep at high tide. Water entering the forebay supplying each cooling water pump first passes through a single metal trash rack (the bars are 3.5 inches apart) that prevents the passage of large debris into the forebay. The trash racks are cleaned periodically using a trash rake. Debris removed from the trash rack is sent to an appropriate land disposal site.

Forebay Cleaning Washwater

Immediately behind each trash rack there is a removable stop log (gate) that when inserted allows the structure to be drained. Once or twice each year when the unit is shut down, each gate is inserted and water in the forebay and inlet pipes is pumped (using portable pumps) into the travelling screen washwater discharge trough that crosses over the intake channel and empties into the discharge channel. Based on the dimensions of the forebays/inlet piping and assuming this occurs at high tide, the amount of water that is drained from each forebay/inlet piping is 188,400 gallons (each from Unit 1 and Unit 2), 228,200 gallons (Unit 3) and 216,900 gallons (Unit 4). After draining, to aid in the removal of growth, the forebay walls and inlet pipes are manually washed and scraped using only seawater pumped from the travelling screen wash water supply header. The washed and scraped growth from this process is pumped into the travelling screen washwater discharge trough and empties into the discharge channel. The amount of seawater used during each wash for each forebay/inlet piping varies depending on the amount of growth present. The sea door is then opened, the unit commences operation and the residual wash water mixes with the cooling water. It is estimated that the amount of water pumped to the travelling screen trough for this process is about 1,700,000 gallons per year assuming each forebay is drained and cleaned twice each year.

Traveling Screen Washwater

At the back of each forebay are travelling screens to remove debris not collected and removed on the trash racks. There are a total of eight traveling screens: the Units 1 and 2 structure has four screens, and the Units 3 and 4 structures have two screens each. The screens are conventional through-flow, vertically rotating, single entry, band-type screens, mounted in the screen wells of the intake structures. Each screen consists of a series of 35 baskets or screen panels attached to a chain drive. The height of each screen structure is 27.5 feet. The screen structure for Units 1 and 2 is 63.5 feet wide, with intake openings 11.25 feet wide. The screen structure for Unit 3 is 32 feet wide, with 11.25 feet wide intake openings. The screen structure for Unit 4 is 31 feet wide, with intake openings of

11.25 feet. As the cooling water flows through the screen structure, it passes through 0.375-inch wide stainless steel or polyester mesh traveling screens. Each screen starts-up and rotates automatically when debris buildup causes a predetermined level differential across the screen. As the screen revolves, the material is lifted from the water surface by the upward travel of the baskets. A screen wash system in the traveling screen structure provides seawater from the intake to wash the debris from the traveling screen. At the head of the screen, matter is removed from the baskets by the high-pressure (70-100 psi) spray of water that is evenly distributed over the entire basket width. The jet spray washes the material into the travelling screen washwater discharge trough that crosses over the intake channel and empties into the discharge channel. In general for each screen, if it washes continuously for 24 hours, it would use about 79 MGD, or a total for the entire plant of about 316 MGD. About half of this (158 MGD) is returned to the bay through the trough and discharge channel, and half (about 158 MGD) is drained back into the intake in front of the screens and drawn into the cooling water system.

3. Circulating Water Pumps

Each unit has two circulating (cooling) water pumps, one for each condenser half, for a total of eight pumps. Units 1 and 2 have vertical centrifugal pumps that rotate at 400 rpm and Units 3 and 4 have vertical submerged pumps that rotate at 390 rpm.

Cooling Water

Each circulating water pump draws water in through the traveling screen and discharges it into a pipe that transports the water to a condenser. The pumps for Units 1 and 2 discharge into 48-inch diameter concrete pipes and the pumps for Units 3 and 4 discharge into 60-inch diameter concrete pipes. The length of each of the eight pipes, from the pumps to the condensers, is approximately 200 feet. The approximate combined pumping cooling water volumes from each unit, in MGD, assuming 24 hours of continuous operation are: 112.3 for Unit 1, 112.3 for Unit 2, 179.4 for Unit 3, and 197.0 for Unit 4, for a total capacity of 601 MGD.

Lubrication and Seal Water and Pre-Treatment Backwash

The circulating water pumps for Unit 1 and 2 utilize freshwater (i.e., municipal water) for pump lubrication and seal water. Units 3 and 4 use seawater for this purpose. This seawater is filtered to remove particles that may damage the equipment, and the system automatically backwashes into the travelling screen washwater discharge trough that crosses over the intake channel and empties into the discharge channel. An alternate source of municipal water is available to supply Units 3 and 4 in the event the seawater supply malfunctions. This water once used is discharged into the pipes downstream of each pump. The maximum combined discharge flow rate from these lubrication and seal systems coupled with the lubrication and seal water pre-treatment backwash is 0.127 MGD.

Chlorination System

The SBPP uses a chlorination system that injects liquid sodium hypochlorite into the pipes immediately upstream of the circulating water pumps for each unit. This sodium hypochlorite solution is used intermittently in the cooling water system when the unit is in operation to minimize formation of algae and slime that may collect in the tubes of the condenser. Each injection point is individually controlled. Sodium hypochlorite is injected at each cooling water pump every two hours on a timed cycle each day. This method of chlorination will result in a minimal chlorine residual in the cooling water being discharged to San Diego Bay. The injection of chlorine is staggered so that no two pumps are chlorinated at the same time. In the future, a bromide additive (sodium bromide), which reacts with chlorine to form hypobromous acid, may be used to better control biological fouling of the condensers.

new part should reflect

Units 1 and 2 Circulating Water Pump Station Sump

Units 1 and 2 circulating water pumps are located in a sump. At the northwest side of this sump are two sump pumps that are utilized for keeping the sump dry. The sump pumps are set up to rotate back and forth with only one pump operating at a time. However, if a high water level occurs in the sump, both sump pumps start and run as long as necessary for the sump to be pumped down. The sump may contain rainwater or municipal water from circulating pump seal leaks. The water is pumped to the discharge channel via the travelling screen washwater discharge trough. The maximum discharge with both sump pumps running continuously during a 24-hour period is 4,320 gallons per day.

4. Condensers

Each unit has a single condenser that is a shell-and-tube arrangement in which heat is transferred from the turbine exhaust steam to the circulating (cooling) water. Units 1, 2, and 3 have two-pass condensers (water enters the top, passes through the condenser twice, and exits the bottom). The Unit 4 condenser has a single-pass design. The tubing material in the first pass of the Unit 1 condenser is AL6X, a high performance stainless steel containing alloying elements of chromium, molybdenum and nickel. The second pass is aluminum brass. Unit 2 condenser tubing is aluminum brass, and Units 3 and 4 have copper-nickel tubing. The tubing length (exposed) in Units 1, 2, and 3 is 30 feet and in Unit 4 is 38 feet. All the condensers have 1-inch outside diameter tubing. Based on the heat diagrams for the SBPP, the four condensers will transfer approximately 3.40×10^9 Btu/hr to 417,400 gpm of cooling water when the plant is producing 737 MW.

Condenser Pre-Filter and Ball Re-Circulation System Water

The Unit 1 condenser has pre-filter and ball recirculation system that takes seawater from each of the circulating water pump pipes immediately before the condenser and returns it to the discharge from the condenser. This water is used to reduce fouling on the condenser tubes. Material collected on the filter is automatically discharged directly into the unit's condenser discharge.

Condenser Water and Vacuum Pump Bearing Seal Water

The condensers on all the units use vacuum pumps to remove trapped air pockets from the cooling water system to maintain the unimpeded flow of cooling water to the discharge channel for efficient unit operation. The four pumps discharge a maximum of 10 gpm each of incidentally collected condenser water (seawater) and a small volume of vacuum pump bearing seal water (freshwater from municipal sources) to the intake channel. The Unit 1 vacuum pump discharges the vacuum pump water and pump bearing seal water in separate pipes to the intake channel. Unit 2 vacuum pump utilizes a stormwater discharge pipe to convey vacuum pump water and pump bearing seal water to the intake channel. Units 3 and 4 vacuum pumps discharge their respective vacuum pump water and pump bearing seal water combined in separate pipes designated for Unit 3 and Unit 4 respectfully to the intake channel.

Tube Leak Seals

Condenser tube leaks, though they occur intermittently, may cause significant operation problems and increased frequency of boiler chemical cleaning. Alfalfa pellets are used to temporarily plug leaks to allow the unit to operate until it can be removed from service for repair. No water is added to or removed from the cooling water flow for this process.

Corrosion Protection

The metallic surfaces of the cooling water system that comes into contact with seawater are subject to erosion and corrosion. Each unit's cooling water system utilizes corrosion protection systems to inhibit the corrosion process. The condensers on Units 1, 2, 3 and 4 all utilize impressed current (i.e., electrical) cathodic protection. The six shell and tube salt water heat exchangers and the two shell and tube condensate coolers utilize zinc waste plates, which serves as an anode to promote the corrosion of zinc in place of other metals. No water is added to or removed from the cooling water flow for this process.

results in toxic zinc discharges

Manual Cleaning of Encrusting Organisms

Heat treatment of the forebays, condensers and overall system for removal of encrusting organisms is not practiced. Rather, encrusting organisms are manually cleaned from the condensers on an as needed bases. Forebays and inlet conduits are manually cleaned once or twice per year and wastes are deposited into the discharge channel via the screen debris trough and this material is washed through the system with normal screen wash. No water is added to or removed from the cooling water flow for this process.

Salt Water Heat Exchanger Cooling Water

The SBPP uses seawater from the circulating water inlet conduits for the purpose of cooling the closed loop service water system via shell and tube heat exchanger. There are six seawater heat exchangers at SBPP. Units 1 and 2 utilize two heat exchangers, Unit 3 has two heat exchangers and Unit 4 has two heat exchangers. The cooling water discharges from the heat exchanger to the discharge channel via the once through cooling water discharge conduit. This is part of the total cooling water flow.

Condensate Coolers
The SBPP uses flow from the circulating water inlet conduits for the purpose of cooling the closed loop (condensate) generator cooling systems on Units 1 and 2. There are two shell and tube heat exchangers and one pump associated with this system. Salt water from the inlet conduit flows or is pumped, depending on generator temperature, through the heat exchangers to the discharge channel via the once through cooling water discharge conduit. This is part of the total cooling water flow.

5. Discharge Pipes

The heated water from the condensers passes into four separate concrete discharge pipes, two of which are 72 inches in diameter (Units 1 and 2 pipes) and two of which are 84 inches in diameter (Units 3 and 4 pipes). All of the discharge pipes cross under the Intake Channel. The invert elevation of the discharge pipes for Units 1 and 2 is -19.6 feet. The invert elevation of the discharge pipes for Units 3 and 4 is -9.6 feet. The specific location at which each pipe discharges into the discharge channel is: Latitude 32° 36' 48.8" North, Longitude 117° 05' 52.1" West for Unit 1; Latitude 32° 36' 48.7" North, Longitude 117° 05' 51.5" West for Unit 2; Latitude 32° 36' 48.3" North, Longitude 117° 05' 50.1" West for Unit 3; and Latitude 32° 36' 47.8" North, Longitude 117° 05' 49.1" West for Unit 4. There are no structures such as booms, gates, or screens where the pipes discharge.

6. Discharge Channel

Cooling water is returned to San Diego Bay through a single discharge channel, which runs parallel to and just south of the intake channel. The bottom width of the channel varies from 50 feet near Unit 4 discharge to approximately 1,200 feet at its widest point in the Bay. The depth also varies from -15 feet at the discharge structures and slopes up to meet the existing bottom of the Bay. The channel was constructed by dredging and diking operations. Over the years, some filling-in has occurred, although in the area near the discharge points, it has been minimal.

* where is the legal justification for this the depth of d. channel. this is nothing more than a description

As shown in Attachment 4, a jetty constructed by SDG&E extends from the northern side of the discharge basin into San Diego Bay. This jetty was constructed to prevent discharged cooling water from being drawn directly back into the intake structures. A narrow dredged channel, from which the material to construct the jetty was obtained, parallels the jetty. This dredged channel terminates at approximately Latitude 32°36'33" N, Longitude 117°06'49" W, at the southwestern most end of the jetty.

* If we allow this change we have to $1 mil and to fund dredging when new plant is built

For purposes of Order No. 2001-283, the "discharge channel" consists of the waters bounded by the jetty, a line extending from the southwestern most end of the jetty to the eastern side of the mouth of the Otay River, the southern shoreline of San Diego Bay, and the shoreline of the discharge basin (see Attachment 4). Therefore, the discharge channel includes, but is not limited to, the dredged channel referred to above.

DESCRIPTION OF WASTE DISCHARGE CONVEYANCE SYSTEM

Waste streams associated with the once-through cooling water from the SBPP are discharged to San Diego Bay, through the following conveyances (see Attachment 3):

1. Discharges to the Intake Basin

    a. Separate discharge pipes each for Unit 1, Unit 3, and Unit 4 condenser vacuum pump sealing water;

    b. Separate discharge pipes each for Unit 1, Unit 3, and Unit 4 condenser vacuum water; and,

    c. A separate stormwater discharger pipe which is also used to convey Unit 2 condenser vacuum and condenser vacuum pump sealing water.

should be included in this

2. Discharges to the Discharge Basin

    a. Four individual condenser outlet pipes through which cooling water is discharged (wastewaters discharged to the intake basin and drawn into the intake structures are also discharged through these pipes);

    b. One traveling screen washwater discharge pipe which also functions as a conveyance for backwash water from the pre-filter on the cooling water pump lubrication water supply system, forebay cleaning washwater, and cooling water pump station sump discharge from Unit 1 and Unit 2; and,

    c. One separate discharge pipe for fuel pump motor bearing cooling water.

3. Stormwater Discharges

    In addition to the waste streams associated with cooling water, the SBPP also has a conveyance system that accommodates stormwater runoff. All stormwater discharges from the plant are currently regulated under the General Industrial Storm Water Permit, Order No. 97-03-DWQ, NPDES No. CAS000001. There are nine conduits that discharge stormwater into the intake channel. These include 1) six separate stormwater discharge pipes; 2) one discharge pipe for telephone and valve vault drain water ; 3) one stormwater discharge pipe that is also used to convey Unit 2 condenser vacuum and pump sealing water; and 4) one discharge pipe for fuel oil piping containment water. There are four conduits that are used to convey stormwater to the discharge channel, three of which function as a conveyance for fuel oil pump containment water. !!

confusing wording!!

this doesn't sound clean

So how are these permitted

why aren't these noted above? aren't it

4. DISCHARGE SUMMARY

A summary of monitoring data for pollutants contained in the combined discharge effluent from the SBPP is shown below. The data covers the 1998-2000 period and reflects the discontinuation of the low-volume and metal cleaning waste stream to the combined discharge flows on December 31, 1997. These waste streams started being routed to the City of Chula Vista sanitary sewer system at that time.

Pollutant Ranges in Combined Discharge (pollutants with discharge limits in existing Order No. 96-05)

Year	Flow	pH	Total Chlorine Residual	Acute Toxicity	Delta T[3] (Daily)
Discharge Limit	602.2 MGD	6.0 - 9.0	ug/l[1]	% survival[2]	15° F
1998	405 - 592	7.8 - 8.1	40.0 - 46.7	85.0 - 100.0	6.8 - 12.7
1999	483 - 590	8.0 - 8.3	40.0 - 45.7	90.0 - 100.0	2.3 - 9.6
2000	363 - 589	7.9 - 8.2	40.0 - 70.0	87.5 - 100.0	5.2 - 12.8

[1] Total Chlorine Residual limit is a variable discharge limit based on a continuous uninterrupted chlorination cycle of zero to two hours.
[2] The acute toxicity in a 96-hour static bioassay test, using standard test species, shall not produce less than 90 percent survival, 50 percent of the time, and shall not produce less than 70 percent survival, 10 percent of the time.
[3] Average daily incremental temperature of combined discharge from SBPP above that of the intake water

This is to show the changed.

Pollutant Ranges in Combined Discharge (pollutants with no discharge limits, but requiring monitoring, in Order No. 96-05)

Year	Arsenic	Cadmium	Chlorinated Phenolics	Chromium	Copper	Cyanide	Lead	Mercury	Nickel	Nitrogen, Ammonia	Phenolics	Silver	Zinc	Oil & Grease	TSS
Unit	ug/l	Ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l
1998	nd –1.7	nd	nd	nd-14	nd	nd	nd	nd	nd-8.8	nd	nd	nd	nd-30	.1-3.3	4.9-130
1999.	1.7-2.1	nd	nd	2.1-3.4	nd	nd	nd	nd	nd-12	nd	nd	nd-0.7	nd	.5-3.9	4.4-36
2000	1.6-2.6	nd	nd	nd-1.4	nd-7.6	nd	nd	nd	nd	nd	nd	nd	nd	.6-2.0	2.2-19

5. BENEFICIAL USES

The Basin Plan identifies the following beneficial uses of the waters of San Diego Bay to be protected:

a. Industrial service supply;
b. Navigation;
c. Contact water recreation;
d. Non-contact water recreation;
e. Commercial and sport fishing;
f. Preservation of biological habitats of special significance
g. Estuarine habitat;
h. Wildlife habitat;
i. Rare, threatened, or endangered species;
j. Marine habitat;
k. Migration of aquatic organisms; and
l. Shellfish harvesting.

Needs to say if these Apply to "the discharge channel". They should!

6. SUMMARY OF STUDIES CONDUCTED

As required by Order No. 96-05, the following studies were conducted to determine the impact on beneficial uses of San Diego Bay due to discharges from the SBPP:

- Fish Study for Discharge Channel
- Eelgrass Distribution Study
- Proposed Basin Plan Amendment Study for Dissolved Oxygen to South San Diego Bay
- Copper Special Study

Copies of these studies were sent to the USEPA, the Department of Fish and Game (DFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS), for their review and comment. By letter dated May 5, 2000, the NMFS concurred with the findings of the eelgrass distribution study in south San Diego Bay. No other comments have been received from these agencies regarding the above studies.

Fish Study for Discharge Channel

This final report of this study was submitted in July 2000. The purpose of this three-year study, conducted by Merkel & Associates, was to determine the species and abundance of fish in the SBPP discharge channel. Field work was conducted from April 1997 through January 2000. The study found that the discharge channel supports a diverse fish community that has a similar density of fish as other areas of San Diego Bay, and maintains, on average, a biomass approximately 270% higher than the Bay as a whole. The discharge channel was found to support an average of nearly ten times the density of slough anchovies than areas outside the channel, suggesting that this species is the principal year-round forage base for the large number of birds, including the California least tern and California brown pelican. No fish captured in the study exhibited abnormalities that can be attributed to either chemical damage or natural physical damage.

Same diversity?

same density not the same thing as no impact

Eelgrass Distribution Study

The final report of this study was submitted in February 2000. The purpose of this study, conducted by Merkel & Associates, was to determine the effects of temperature and turbidity on the distribution of eelgrass in south San Diego Bay. The study results indicated that there are significant and persistent differences between the light environments found within eelgrass habitats and outside of eelgrass habitats in south San Diego Bay. These differences in light environments appear to control the distribution of eelgrass. Temperature was not found to be significant in determining the presence or absence of eelgrass. In fact, the highest temperatures recorded were found within eelgrass beds. Furthermore, the mean daily temperature profiles, for all stations combined, was higher within eelgrass beds than outside of eelgrass habitats. The study concluded that the thermal discharge from the SBPP did not have a significant effect on eelgrass distribution within south San Diego Bay.

— what about chlorine?

What about turbidity — where was the conclusion there.

Proposed Basin Plan Amendment Study for Dissolved Oxygen in South San Diego Bay

The final report on this proposed basin plan amendment study was submitted in February 1998. The study was required because the Basin Plan did not contain a water quality objective for dissolved oxygen (DO) in San Diego Bay. The study conducted by Applied Science Associates found that the plants in south San Diego Bay (e.g. phytoplankton, macroalgae, and eelgrass) are the dominant factor controlling dissolved oxygen. Plant photosynthesis adds oxygen to the water during the day, and plant respiration removes oxygen at night, resulting in wide swings in day/night dissolved oxygen concentration. The study

oh + not the chlorine & heat

proposed the following narrative water quality objective for DO in south San Diego Bay: *The DO concentrations of south San Diego Bay shall not be depressed to levels that adversely affect beneficial uses as a result of controllable water quality objectives.* To date, the Regional Board has not adopted an amendment to the Basin Plan to include water quality objectives for DO in San Diego Bay.

What in the hell does this mean AND would it apply in the D channel

Copper Special Study

The final report of this study was submitted in December 1999. The purpose of the one-year study conducted by Duke Energy was to measure the average copper concentration difference between SBPP's intake water and combined discharge, and to determine the annual rate of copper emissions from SBPP to San Diego Bay. The estimated average copper concentration difference between cooling water intake and combined discharge was found to be 0.39 ± *0.17* ug/l. The study estimated that the plant at maximum cooling water flow discharges approximately 710 ± *310* pounds of copper annually. This study was based on copper sampling conducted during the June 29 - July 1, 1999 ~~time period~~.

3 DAYS ??!!

What about zinc

Maybe 1,000 or 710 lbs

7. BASIS FOR WASTE DISCHARGE REQUIREMENTS

FEDERAL REGULATIONS FOR STEAM ELECTRIC POWER GENERATION (40 CFR PART 423)

The federal regulations contain technological limits for steam electric power generation. These limits are found in 40 CFR Part 423. Effluent limitations exist for best practicable control technology currently available (BPT), best available technology economically achievable (BAT), and best conventional pollutant control technology (BCT). The Clean Water Act (CWA) requires compliance with all levels of technological limits. The existing Order No. 96-05 applied the most stringent limits to the cooling water, low-volume, and metal cleaning wastes discharged to San Diego Bay. Order No. 2001-283 updates the effluent limits from these processes, subject to 40 CFR 423, as follows:

The SBPP eliminated its low-volume and metal cleaning discharges to San Diego Bay, starting December 31, 1997. These wastes were routed to the City of Chula Vista sewer system from that date. Therefore, Order No. 2001-283 does not include 40 CFR 423 pollutant effluent limits applicable to these discharges and associated in-plant waste streams.

Total Chlorine Residual in Cooling Water

Pursuant to 40 CFR 423.12, the BAT limit for total chlorine residual for once-through cooling water is 0.20 mg/l. Order No. 96-05 also has a water quality based limit for total chlorine residual in the combined discharge. This limit was developed on behalf of the discharger using data on the effects of chlorine on marine organisms species and genera which occur in San Diego Bay using statistical regression techniques. Such analysis provides a scientifically sound means of relating chlorine toxicity to the concentration of chlorine and time of exposure. The federal BAT limit was compared to the water quality based limit and the lowest value was selected. Order No. 2001-283 continues to use this approach in selecting the most stringent total chlorine residual limit in the combined discharge.

that are already chlorine resistant

The following linear regression derived equation is used in determining the water quality based total chlorine residual limit in the combined discharge:

$$\log y = (ax + b) - t_{0.90}S_y.S_X \{1 + 1/n + (x - X)^2 / \Sigma(x_i - X)^2\}^{0.5}$$

Where:

y	=	residual chlorine limit (mg/l);
x	=	log (base 10) of the duration of uninterrupted chlorine/bromine discharges in minutes;
a	=	slope of linear regression line = -0.404;
b	=	intercept of linear regression line = 0.383;
$t_{0.90}$	=	"t" statistic (alpha = 0.10, n-2 degrees of freedom) = 1.685;
S_yS_x	=	standard deviation about regression line = 0.393;
n	=	number of toxicity measurements available for regression = 41;
X	=	mean log exposure time = 3.058; and
$\Sigma(x_i - X)^2$	=	sum of squares about X = 33.947

WATER QUALITY CONTROL PLAN, SAN DIEGO BASIN (9)

Toxicity Objectives

The Basin Plan includes the following narrative water quality objective for toxicity:

All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board.

The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge or, when necessary, for other control water that is consistent with requirements specified in U.S. EPA, State Water Resources Control Board or other protocol authorized by the Regional Board. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour acute bioassy

In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances will be encouraged.

The SBPP combined discharge may cause or has the reasonable potential to cause or contribute to an excursion above the narrative objective of toxicity stated in the Basin Plan. Therefore, in accordance with 40 CFR 122.44(d)(1)(v), existing Order No. 96-05 contains effluent limits for whole effluent toxicity (acute toxicity).

The current permit specifies that in a 96-hour static or continuous flow (acute toxicity) bioassay test, using standard test species, the undiluted combined discharge from the SBPP shall not produce less than 90 percent survival, 50 percent of the time, and shall not produce less than 70 percent survival, 10 percent of the time.

The existing permit does not specify the time period for which bioassay tests and associated percent survival rates should be based. Order No. 2001-283 will require that compliance with the acute toxicity limit be based on bioassay tests conducted during each individual quarter.

or percent of samples,

need to add

BAYS AND ESTUARIES POLICY

The State Board adopted the *Water Quality Control Policy for Enclosed Bays and Estuaries of California* (*Bays and Estuaries Policy*) on May 16, 1974. The *Bays and Estuary Policy* establishes principles for management of water quality, quality requirements for waste discharges, discharge prohibitions, and general provisions to prevent water quality degradation and to protect the beneficial uses of waters of enclosed bays and estuaries. These principles, requirements, prohibitions, and provisions have been incorporated into this Order.

The Bays and Estuaries Policy contains the following principle for management of water quality in enclosed bays and estuaries, which includes San Diego Bay:

The discharge of municipal wastewaters and industrial process waters (exclusive of cooling water discharges) to enclosed bays and estuaries shall be phased out at the earliest practicable date. Exceptions to this provision may be granted by a Regional Board only when the Regional Board finds that the wastewater in question would consistently be treated and discharged in such a manner that it would enhance the quality of receiving waters above that which would occur in the absence of the discharge. For the purpose of this policy, treated ballast waters and innocuous nonmunicipal wastewater such as clear brines, washwater, and pool drains are not necessarily considered industrial process wastes, and may be allowed by Regional Boards under discharge requirements that provide protection to the beneficial uses of the receiving water.

The Bays and Estuaries Policy also prohibits the discharge or by-passing of untreated wastes. This Order prohibits the discharge and by-passing of untreated waste except for non-contact cooling water.

The Bays and Estuaries Policy also contains the following principle for management of water quality in enclosed bays and estuaries, which includes San Diego Bay:

The following policies apply to all of California's enclosed bays and estuaries:

1. Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge.

2. Bay or estuarine outfall and diffuser systems shall be designed to achieve the most rapid initial dilution practicable to minimize concentrations of substances not removed by source control or treatment.

3. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.

4. Waste discharges shall not cause a blockage of zones of passage required for the migration of anadromous fish.

5. Nonpoint sources of pollutants shall be controlled to the maximum extent practicable.

-6 mgd sw - 10yr storm - 24 hr

The terms and conditions of Order No. 2001-283 are consistent with the above policies. No they aren't!!

THERMAL PLAN

According to Section 4.A(1) (Existing Discharges) of the State Water Quality Control Plan for Control of Temperature in Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan), elevated temperature waste discharges shall comply with limitations necessary to assure protection of beneficial uses. The SBPP is an existing discharger and must comply with Section 4.A(1) of the Thermal Plan.

Ford & Chambers completed a thermal effects study in 1972-73, on behalf of the discharger, as required by the Thermal Plan. The study was undertaken to assess the effects of thermal effluent from SBPP on: 1) the physical and chemical environment of the bay, and 2) benthic, marine plants, and invertebrates that inhabit intertidal mudflats and subtidal mud bottom habitats of south San Diego Bay. Sampling was conducted quarterly on 18 subtidal and seven intertidal stations. Evidence regarding the effects of thermal discharge were assessed on the basis of: 1) difference in species composition; 2) number and diversity of species; 3) distribution, abundance and biomass of species and major taxonomic groups; 4) size of individuals, and 5) the quantitative relationship of these to temperature and other environmental factors.

!!!! Evidence from both intertidal and subtidal sampling suggested that elevated water temperatures caused by the thermal discharge had adverse impacts to bay organisms that inhabited the cooling water discharge channel, particularly in late summer and early autumn. These effects were much reduced during the winter and spring periods when !!!!

ambient water temperature dropped and the temperature of the thermal plume lowered. During all seasons however, the adverse effects appeared to be confined primarily to the inner portions of the discharge channel. The overall conclusion by Ford & Chambers was that the thermal effluent from the SBPP had no major adverse effects on the benthic communities beyond the end of the discharge channel.

major point!

Subsequent thermal effects studies and monitoring conducted by various environmental and research entities (including: Lockheed 1977-81, Woodward-Clyde 1982-83, Westec 1984, CH2M Hill 1985, and Kinetic Labs 1986-89) have confirmed the initial studies conducted by Ford & Chambers.

As discussed above, the existing thermal limits for cooling water discharges from SBPP are adequate in protecting the beneficial uses of south San Diego Bay. Order No. 96-05 limits the average incremental temperature of cooling water discharge from SBPP above that of the intake water to 15 degrees F, during any 24-hour period (daily Delta T). In addition, the current permit also limits the instantaneous Delta T to 25 degrees F. The daily and instantaneous Delta T limits of 15 degrees and 25 degrees F respectively, will continue to be enforced in Order No. 2001-283.

Order No. 2001-283, modifies the average daily Delta T compliance period from a rolling 24-hour basis to a calendar day basis. This change facilitates thermal monitoring on a daily level and eliminates excessive recordkeeping.

what are the pitfalls with this - How can the get around. ED JP

SPECIAL REGULATIONS, 316(A) AND 316(B)

Section 316(a) of the Clean Water Act (CWA) requires that States impose an effluent limitation with respect to the thermal component of a discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water. As discussed earlier, the existing daily and instantaneous Delta T thermal limits were found to be adequate in protecting the beneficial uses and indigenous species of south San Diego Bay. A USEPA review of 18 years (1977-94) of annual summer benthic studies concluded that although the benthic community in the discharge channel typically contains somewhat reduced diversity and abundance of species, the community present there is within the range observed at sampling stations outside the discharge channel and there have been no appreciable longterm upward or downward trends in species diversity or abundance. Based on this finding, the SBPP appears to have demonstrated compliance with Section 316(a).

- can't prove this.

beyond the disch chanl

can't make this finding all conducts while the plant was operating

CWA Section 316(b) requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. By letter dated October 30, 1977, the Regional Board requested SDG&E to initiate studies to demonstrate conformance with the requirements of Section 316(b) of the CWA.

In December, 1980, SDG&E submitted the final results of a cooling water intake system demonstration project for the SBPP intended to comply with Section 316(b) of the CWA. SDG&E concluded that "the low and insignificant level of impact demonstrates that the existing SBPP's intake system represents the best technology available for this specific site to minimize adverse environmental impacts."

In September, 1993, the USEPA reviewed and concurred with the SBPP 316(b) demonstration project results which indicate that marine receiving waters in the vicinity of the SBPP contain viable, self-sustaining populations or communities of organisms and that the plant incorporates intake technologies for the purpose of minimizing adverse environmental impacts. In addition, the USEPA concluded that operations at the SBPP have not considerably changed since the demonstration project was completed, thus indicating that the demonstration is applicable to current operations at the SBPP. Therefore, the SBPP meets the requirements of CWA Section 316(b).

The above finding regarding compliance with Section 316(b) of the CWA is based on review of information submitted to date. If this information is reevaluated, additional information is received, or the applicable laws or regulations are amended, then the findings and/or conditions of Order No. 2001-283 will be modified accordingly.

OCEAN PLAN

The SWRCB adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on July 23, 1997.

In order to protect the above beneficial uses, the Ocean Plan establishes water quality objectives (for bacteriological, physical, chemical, and biological characteristics, and for radioactivity), general requirements for management of waste discharged to the ocean, quality requirements for waste discharges (effluent quality requirements), discharge prohibitions, and general provisions. The Ocean Plan is not applicable to discharges to enclosed bays (including San Diego Bay), estuaries or inland waters.

Although the Ocean Plan is not applicable to enclosed bays such as San Diego Bay, the salinity and beneficial uses of San Diego Bay are similar to those of the ocean waters of the State. Therefore, in order to protect the beneficial uses of San Diego Bay, discharge limitations for selected pollutants were initially derived from Tables A and B of the Ocean Plan by applying the calculations and procedures found in the Ocean Plan. These discharge limits were incorporated into Order No. 96-05 on an interim basis. The pollutants included: arsenic, cadmium, chromium (hexavalent), copper, lead, mercury, nickel, silver, zinc, cyanide, ammonia (as N), phenolic compounds (non-chlorinated) and chlorinated phenolics, bis(2-chloroethoxy) methane, bis(2-ethylhexyl) phthalate, chloroform, chromium (III), di-n-butyl phthalate, halomethanes, and PAHs. All discharges of these pollutants were attributed to the in-plant waste streams generated from low-volume wastes and metal cleaning operations. Order No. 96-05 authorized the elimination of these discharge limits once all metal cleaning and low-volume wastes were routed to the City of Chula Vista sanitary sewer system effective December 31, 1997.

Order No. 96-05 continued to maintain final receiving water limits for: arsenic, cadmium, chromium (hexavalent), copper, lead, mercury, nickel, silver, zinc, cyanide, total chlorine residual, ammonia (as N), acute toxicity, phenolic compounds (non-chlorinated) and chlorinated phenolics, and radioacitivity, even after the cessation of metal cleaning and low-volume wastes to San Diego Bay. Order No. 2001-283 requires receiving water limits for only those parameters attributable to once-through cooling water discharges, such as acute toxicity and total residual chlorine. How About DO ? !! + Copper !! ZN!!

On March 2, 2000, the SWRCB adopted a Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Implementation Policy). This Implementation Policy sets specific requirements and numerical limits for metals and priority pollutant discharges to enclosed bays such as San Diego Bay, as required by the California Toxic Rule (CTR). Order No. 2001-283 will utilize this Implementation Policy, rather than the Ocean Plan, for establishment of discharge and receiving water limits of metals and other priority pollutants to San Diego Bay. The incorporation of the provisions of this Implementation Policy into Order No. 2001-283 are discussed in Section 8 of this Fact Sheet.

ANTIDEGRADATION POLICIES

Pursuant to 40 CFR 131.12 and State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (collectively "antidegradation policies"), the Regional Board shall ensure that any increase in pollutant loading to a receiving water is consistent with antidegradation policies. Order No. 2001-283 does not authorize any new discharges. Furthermore, effluent concentration and mass emission rate limitations in this Order are the same or more stringent than those in Order No. 96-05. Therefore, the requirements of Order No. 2001-283 are consistent with antidegradation policies.

8. CALIFORNIA TOXIC RULE (CTR) COMPLIANCE

Pursuant to Section 1.2 of the SWRCB's Implementation Policy, Duke Energy submitted effluent data required to conduct a determination if water quality-based effluent limitations are required for priority pollutants, in SBPP's NPDES Permit. The data for all priority pollutants except dioxins, polychlorinated biphenyls (PCBs), and pesticides, was based on effluent and background sampling conducted on December 12 and 13, 2000. Data for dioxins, PCBs, and pesticides was based on sampling conducted on June 27 and 28, 2001.

Pursuant to Section 1.3 of the Implementation Policy, a reasonable potential analysis (RPA) of data is required to determine which priority pollutants would required effluent limitations. All priority pollutants except arsenic, selenium, copper, nickel, chromium (total), lead, and silver were found to be in non-detectable levels in both effluent and background.

what may mean — the sediments are contaminated!!!

Duke Energy indicated in its NPDES renewal application (EPA Form 2C introduction) that it is likely that choppy water conditions and runoff from various storm drain channels during sampling conducted on December 12 and 13, 2000, caused the bottom of the discharge channel to be disturbed and contribute to unusually high results for metals such as copper and nickel. Duke Energy also indicated that historical sampling for these metals has revealed much lower or non-detectable results. Based on this assertion by Duke, the results for the copper and nickel sampled on December 12 and 13, 2000 were considered inadequate in conducting a complete and conclusive RPA.

give me A break!!!

Zinc is also there

Pursuant to Section 2.2.2 (Interim Requirements for Providing Data) of the Implementation Policy, Order No. 2001-283 requires the discharger to conduct additional discharge and ambient background sampling for copper and nickel. Sampling for these pollutants will be required for the period starting with the adoption of the permit and continuing through March 2002. Sampling results will be required to be submitted by May 1, 2002. This sampling will enable staff to fully characterize the trend of copper and nickel concentration in the discharge and ambient background during the entire wet weather season, which typically renders the highest metal results. The sampling protocol, location, frequency, and reporting dates are incorporated in Monitoring and Reporting Program (MRP) No. 2001-283. Duke Energy will also be required to conduct one-time sampling for chromium (hexavalent and total), since result were only submitted for chromium (total).

Once adequate data has been submitted, staff will conduct an RPA to determine if effluent limits are needed for copper, nickel, and chromium (hexavelent and trivalent). If the RPA identifies a need for effluent limits, staff will calculate limits using procedures specified in Section 1.4 of the Implementation Policy. Pursuant to Section 1.4.4 of the Implementation Policy, staff will also determine if intake water credits can be granted to SBPP during establishment of these effluent limits. Order No. 2001-283 may be re-opened at a later date to incorporate the results of this analysis.

No! since they recirculate their discharge

Staff conducted an RPA for all pollutants, except copper, nickel, and chromium (hexavelent) and chromium (trivalent), using the SWRCB's California Permit Writer and Training Tool (CPWTT) computer program. Based on the results of this analysis (see Attachment 5) in conjunction with the use of Best Professional Judgement (BPJ), staff concluded that effluent limits will not be required for any of the applicable metals, volatiles, semi-volatiles, pesticides, polychlorinated biphenyls (PCBs), and 2,3,7,8-TCDD (dioxin), listed in the CTR.

which allows [illegible]

Section 3 of the Implementation Policy requires effluent monitoring for 17 congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) for all major industrial dischargers such as SBPP. These congeners and corresponding toxic equivalency factors (TEFs) are listed in Table 4 of the Implementation Policy. The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach.

Pursuant to Section 3 of the Implementation Policy, the discharger will be required to monitor its effluent for the presence of the 17 congeners once during dry weather and once during wet weather in each of the three years, following the issuance of Order No. 2001-283. The discharger will be required to multiply each measured or estimated congener concentration by its respective TEF value and report the sum of these values. The provisions of this monitoring requirement are incorporated into MRP No. 2001-283.

Duke Energy is required to demonstrate full compliance with this Implementation Policy by May 22, 2003.

9. MONITORING AND REPORTING REQUIREMENTS

In an effort to standardize monitoring and reporting requirements and in order to support electronic data submittal of discharger self-monitoring reports, reporting units, definitions, and deadlines specified in the MRP for Order No. 2001-283 have been written in accordance with the State Water Resource Control Board's *Water Quality Permit Standards Team Final Report.*

Pollutants with discharge limits including total chlorine residual and pH will continue to be monitored and reported on a monthly basis. Flow and temperature will be monitored continuously, and reported on a monthly basis. Bioassy tests for acute toxicity compliance shall be conducted and reported on a quarterly basis. Sampling will be required for both intake and discharge channels. MRP No. 2001-283 will continue to require monitoring of grease and oil, chronic toxicity, and total suspended solids.

chlorin once monthly! NO

Monitoring of metals and other priority pollutants will be conducted in accordance with the SWRCB's Implementation Policy, as discussed in Section 8 (CTR Compliance) of this Fact Sheet.

what no regular monthly of Cu + Zn

Monitoring frequency and constituent analysis for the combined discharge is consistent with Order No. 96-05 and other power plant permits. Constituents monitored in combined waste samples are derived from *Development Document for Effluent Limitations Guidelines and Standards and Pretreatment Standards for the Steam Electric Point Source Category, EPA-440/1-82/029.* This document contains extensive data on the frequency at which certain chemicals were detected in power plant waste streams. This information, an assessment of the plant's self-monitoring reports, and best professional judgement were used to determine the monitoring requirements.

Pursuant to Section B of MRP No. 96-05, the discharger was required to annually measure bar rack approach velocity and sediment accumulation at the intake structure and submit an annual summary describing any operational difficulties at the intake structure or the bar rack. Order No. 96-05 indicates that this monitoring requirement may be needs to report entrainment & impingement data & impacts

deleted if the discharger demonstrates to the satisfaction of the Executive Officer that no substantive changes in bar rack approach velocity and sediment accumulation have occurred since monitoring was initiated and the likelihood of future changes is remote. Bar rack approach velocity and sediment accumulation data for 1996 to 1999 were evaluated for significant changes over the four-year period using regression analysis. Three out of the four intake structures showed no significant changes in sediment accumulation or approach velocity for the four-year period. One structure showed a decreasing trend in accumulation and approach velocity. Based on these results the bar rack approach velocity and sediment accumulation monitoring requirements were not included in MRP No. 2001-283.

The receiving water monitoring program has remained essentially unchanged since the SBPP was first permitted as an NPDES discharger. Duke Energy is required to perform temperature, salinity, dissolved oxygen, and transparency monitoring, on a monthly basis, at 11 stations dispersed around San Diego Bay. This monthly receiving water monitoring requirement will continue to be required in Order No. 2001-283.

10. EFFECTIVE AND EXPIRATION DATES OF ORDER NO. 2001-283

Order No. 2001-283 becomes effective ten (10) days after its adoption provided the Regional Administrator, USEPA, has no objection. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn. The Order expires on December 12, 2006.

11. WRITTEN COMMENTS

Interested persons are invited to submit written comments upon these draft waste discharge requirements. Comments should be submitted either in person or by mail, during business hours, to:

John H.Robertus, Executive Officer
Attn: Hashim Navrozali
Regional Water Quality Control Board, Region 9
9174 Sky Park Court, Suite 100
San Diego, California 92123

It would be helpful to have comments submitted no later than December 5, 2001.

12. PUBLIC HEARING

In accordance with 40 CFR 124.10, the RWQCB must issue a public notice whenever NPDES permits have been prepared, and that the tentative permits will be brought before the RWQCB at a public hearing. The public notice has been published in The San Diego Union-Tribune newspaper no less than 30 days prior to the scheduled public hearing.

major problem

Duke Energy, 9 government agencies and 16 known interested parties were notified directly by mail at least 30 days prior to the meeting.

Tentative Order No. 2001-283, will be considered by the Regional Board at a public hearing beginning at 9:00 am on December 12, 2001. The location of this meeting is as follows:

Metropolitan Wastewater Dept.
Auditorium
9192 Topaz Way
San Diego, California

13. WASTE DISCHARGE REQUIREMENT REVIEW

After the close of the public hearing, the RWQCB may adopt a final NPDES permit. Any person may petition the State Board to review the decision of the Regional Board regarding the final Waste Discharge Requirements. A petition must be sent to the Office of the Chief Counsel, State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95801 within 30 days of the Regional Board public hearing.

14. ADDITIONAL INFORMATION

For additional information, interested persons may write the following address or contact Mr. Hashim Navrozali of the Regional Board staff at (858) 467-2981 or by email at navrh@rb9.swrcb.ca.gov:

Regional Water Quality Control Board, Region 9
Attn: Hashim Navrozali
9174 Sky Park Court, Suite 100
San Diego, California 92123

Copies of the applications, tentative NPDES waste discharge requirements, and other documents (other than those that the Executive Officer maintains as confidential) are available at the RWQCB office for inspection and copying according to the following schedule (excluding holidays):

Monday and Thursday:	1:30 pm to 4:30 pm
Tuesday and Wednesday:	8:30 am to 11:30 am
	1:30 pm to 4:30 pm
Friday:	8:30 am to 11:30 pm

15. REFERENCES FOR WASTE DISCHARGE REQUIREMENTS

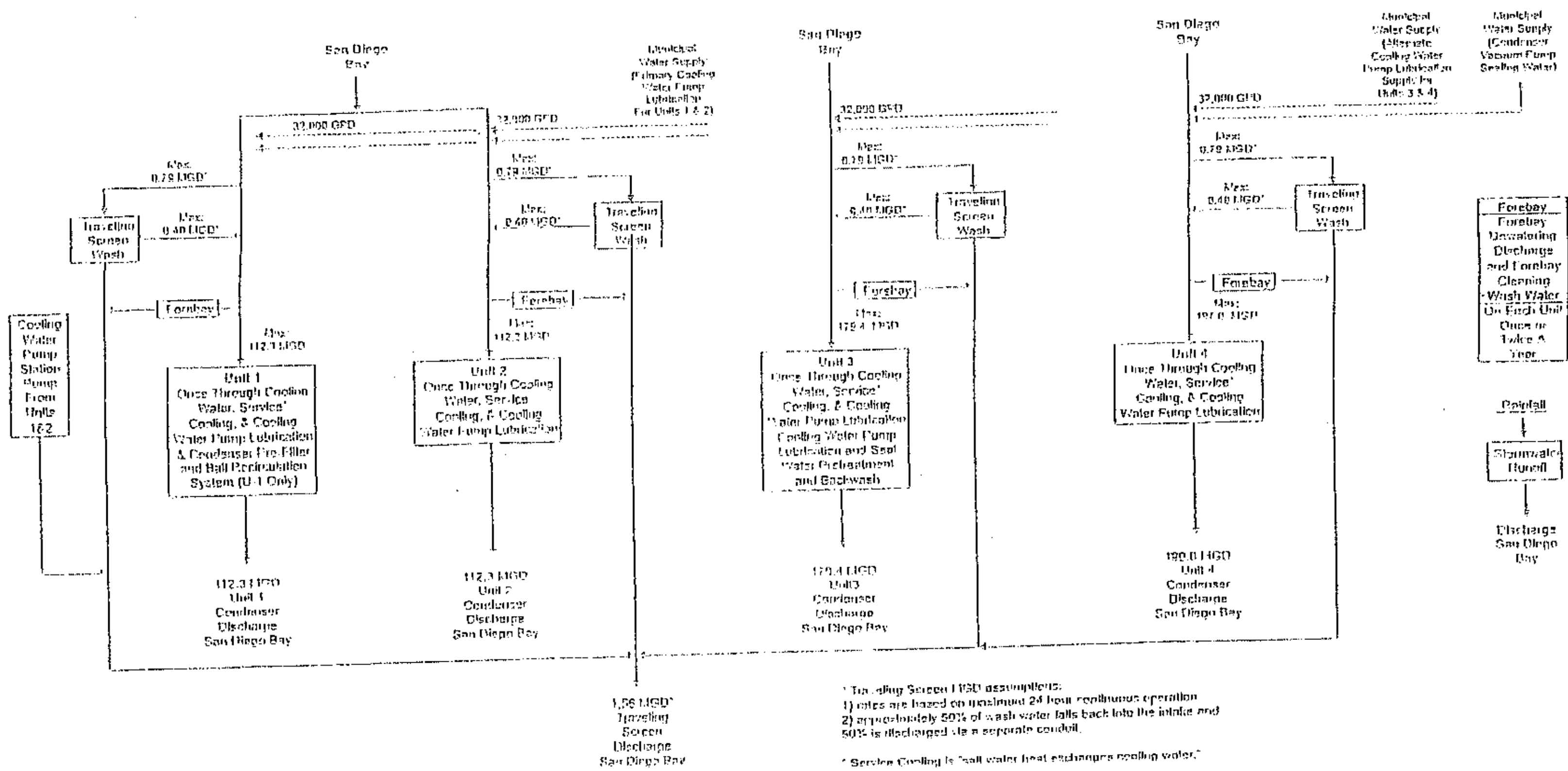
The following documents provide the necessary references for the basis of this NPDES permit:

a. State Water Quality Control Plan for Control of Temperature in Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan).
b. Order No. 96-05, Waste Discharge Requirements for San Diego Gas and Electric Company, South Bay Power Plant, San Diego County.
c. The Water Quality Control Plan for the San Diego Basin (9) (Basin Plan), 1994.
d. Water Quality Control Plan, Ocean Waters of California, California Ocean Plan (Ocean Plan), 1997.
e. The Code of Federal Regulations Part 40, Section 122, 136, and 423.
f. The Clean Water Act; Sections 208, 301, 302, 303, 304, 306, 307, 402, 403, and 405.
g. The California Code of Regulations, Title 23, Division 3 and 4.
h. Application for the Renewal of the NPDES Permit for the Duke Energy, LLC, South Bay Power Plant, May 4, 2001.
i. SWRCB Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Implementation Policy)

ATTACHMENT 1

Once-through Cooling Water System Components and Associated Waste Streams

South Bay Power Plant
(NPDES Permit No. CA0001368)

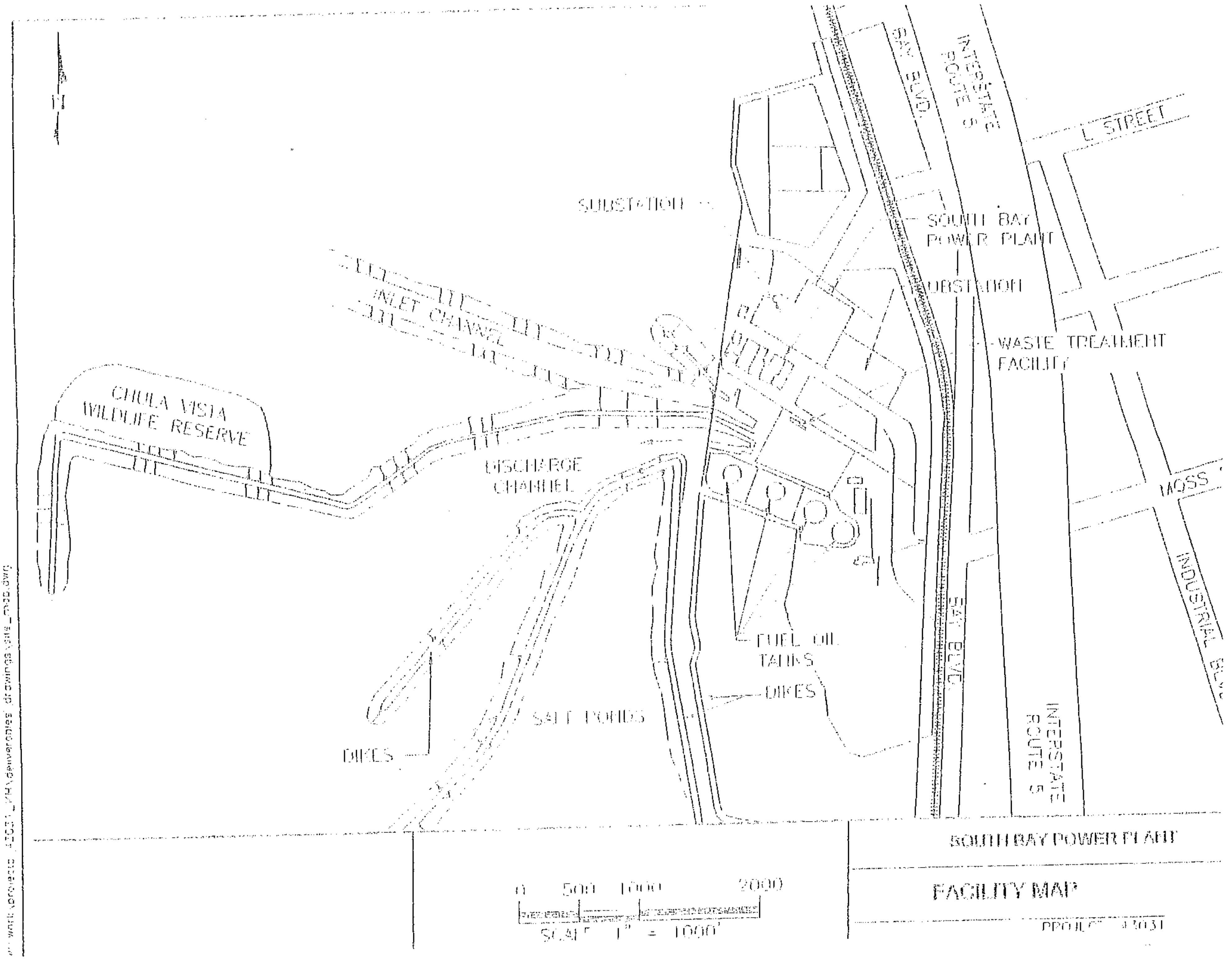


* Traveling Screen MGD assumptions:
1) rates are based on maximum 24 hour continuous operation
2) approximately 50% of wash water falls back into the intake and 50% is discharged via a separate conduit.

¹ Service Cooling is "salt water heat exchanger cooling water."

ATTACHMENT 2

South Bay Power Plant Facility Diagram



SOUTH BAY POWER PLANT

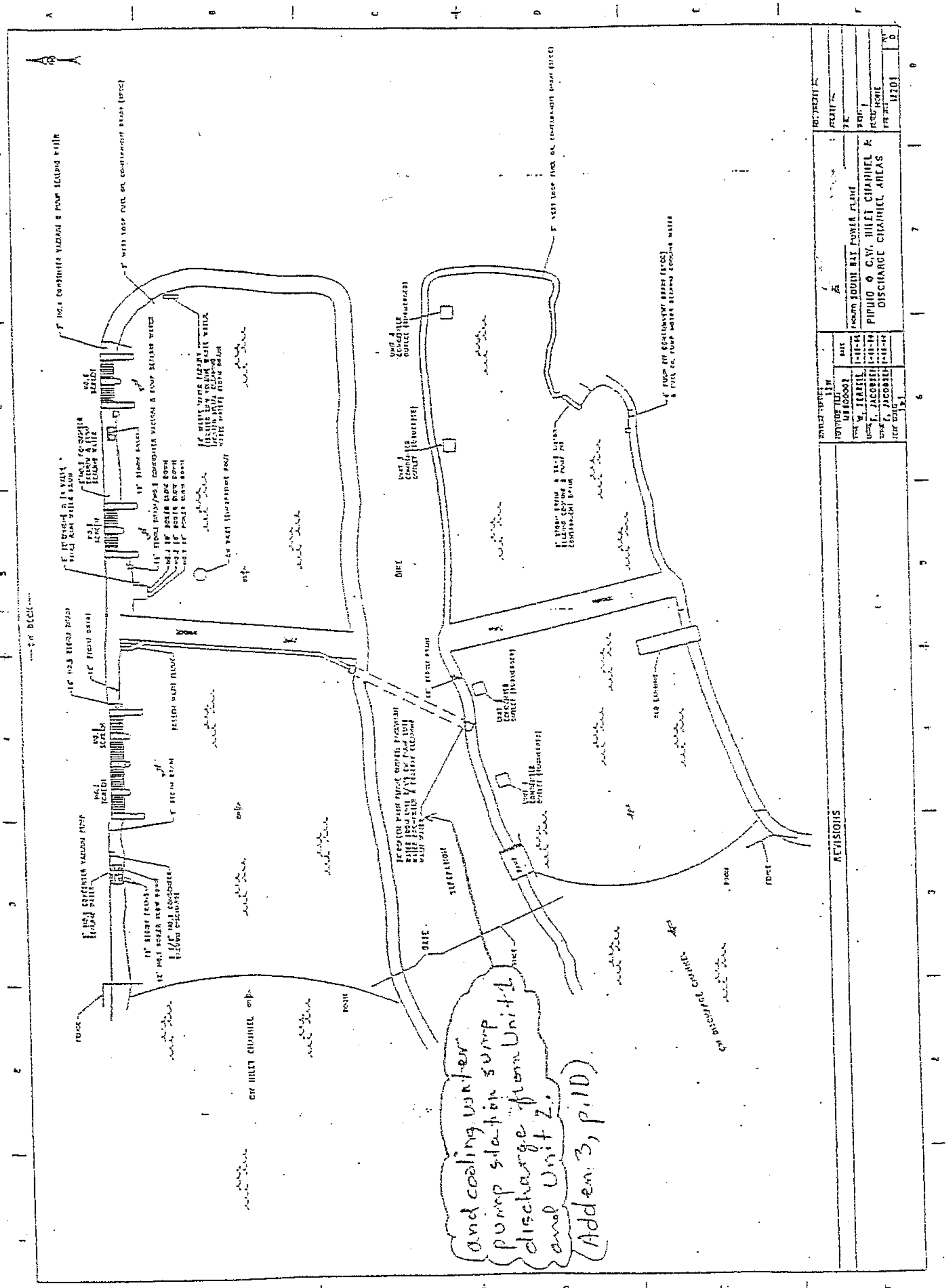
FACILITY MAP

PROJECT 3031

ATTACHMENT 3

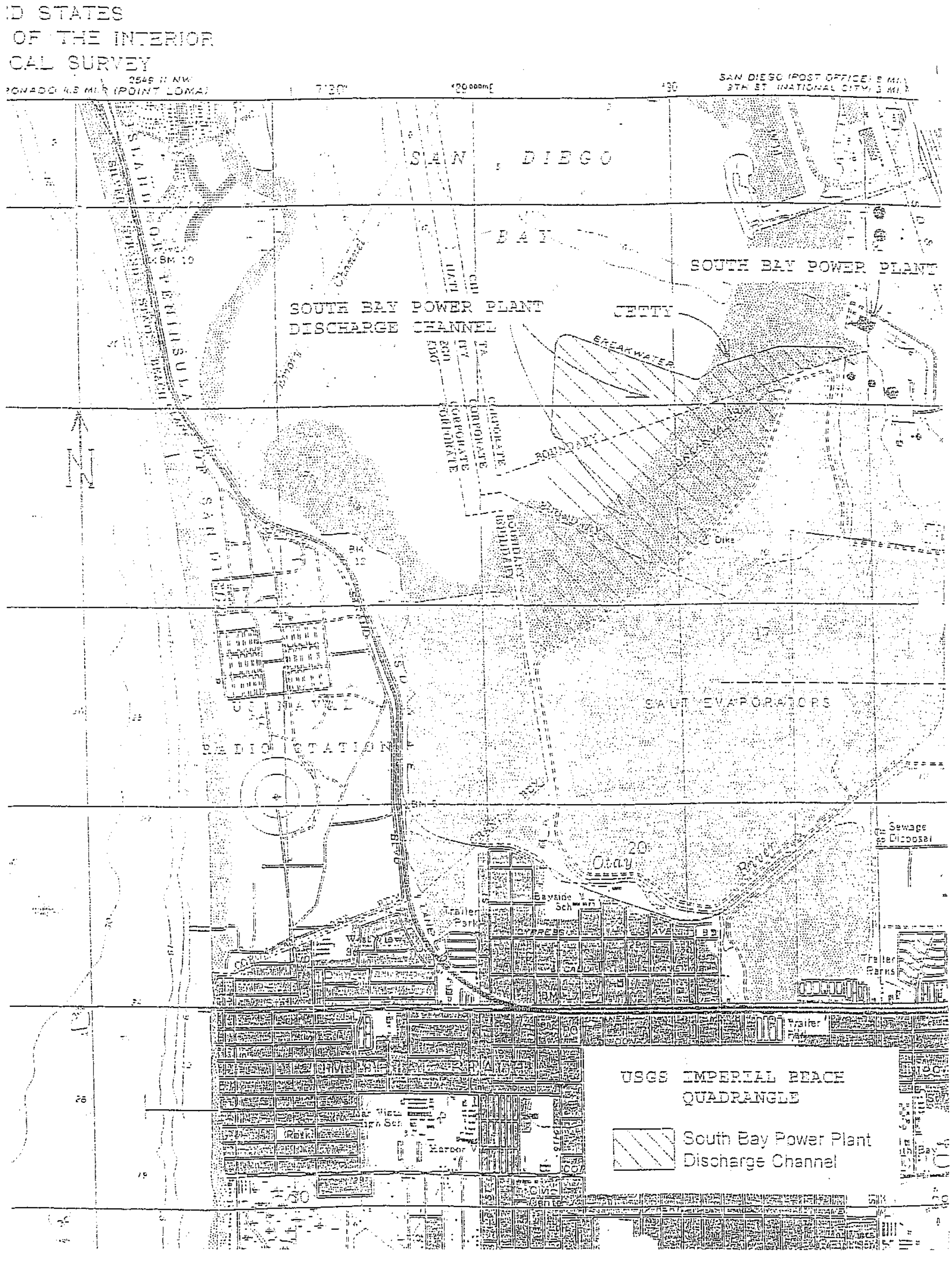
South Bay Power Plant Intake and Discharge Basins

SOUTH BAY POWER PLANT INTAKE AND DISCHARGE BASINS



ATTACHMENT 4

Discharge Channel of the South Bay Power Plant



D STATES
OF THE INTERIOR
CAL SURVEY
SAN DIEGO
BAY
SOUTH BAY POWER PLANT
SOUTH BAY POWER PLANT DISCHARGE CHANNEL
JETTY
BREAKWATER
BOUNDARY
CORPORATE
Channel
Dike
SALT EVAPORATORS
U S NAVAL RADIO STATION
Otay
River
Sewage Disposal
Bayside Sch
Trailer Park
Trailer Parks
West View
CYPRESS AV
USGS IMPERIAL BEACH QUADRANGLE
South Bay Power Plant Discharge Channel